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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/664,458	09/18/2003	Shunpei Yamazaki	0553-0379	4357

7590 01/18/2007

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EXAMINER	
RAABE, CHRISTOPHER M	
ART UNIT	PAPER NUMBER
2879	

SHORTENED STATUTORY PERIOD OF RESPONSE	MAIL DATE	DELIVERY MODE
3 MONTHS	01/18/2007	PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

If NO period for reply is specified above, the maximum statutory period will apply and will expire 6 MONTHS from the mailing date of this communication.

Office Action Summary	Application No.	Applicant(s)	
	10/664,458	YAMAZAKI ET AL.	
	Examiner	Art Unit	
	Christopher M. Raabe	2879	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE *3* MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *30 October 2006*.

2a)☒ This action is **FINAL**. 2b)☐ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-15 and 23* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-15 and 23* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☐ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____.
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

DETAILED ACTION

1. Applicant's submission, filed October 30, 2006 has been entered and acknowledged by the examiner.

2. Applicant's arguments filed October 30, 2006 have been fully considered but they are not persuasive.

While the applicant argues that Koyama does not disclose the wiring to be in contact with the anode on the first passivation film, the examiner asserts that Koyama does disclose the wiring to be in contact with the anode on the first passivation film (556, 554 of figs 16). The rejections of the claims are therefore maintained.

Claim Rejections - 35 USC § 103

3. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

4. Claims 1,9-14 are rejected under 35 U.S.C. 103(a) as being unpatentable over Koyama (U.S. Pre-grant Publication 2001/0002703, in view of Himeshima et al. (Japanese Patent 09-235546).

With regard to claim 1,

Koyama discloses a light-emitting device comprising: a transistor formed over a substrate (paragraph 231) a first passivation film (paragraph 234) and a second passivation film (paragraph 242); and a light-emitting element formed between the first passivation film and the second passivation film (paragraph 241); and a wiring formed over the first passivation film and connected to the transistor (556 of figs 16), wherein the light-emitting element comprises an anode, a cathode and a light-emitting layer between the anode and the cathode (paragraph 241) wherein the wiring is in contact with the anode on the first passivation film (556, 554 of figs 16); wherein the light-emitting layer comprises a dopant (paragraph 8), wherein the anode is in contact with the first passivation film (paragraphs 321-324, figs 16); wherein the cathode is in contact with the second passivation film (paragraphs 330,331, fig 16c).

Koyama does not disclose the dopant at a concentration of 0.1% by weight or more and 0.4% by weight or less.

Himeshima et al. do disclose a dopant at a concentration of 0.1% by weight or more and 0.4% by weight or less (paragraph 19, and embodiment 6), avoiding a concentration quenching effect.

It would have been obvious to one of ordinary skill in the art at the time of the invention to incorporate the concentration disclosed in Himeshima et al. into the device of Koyama in order to avoid a concentration quenching effect (paragraph 19 of Himeshima et al.).

5. Claims 2,9-14 are rejected under 35 U.S.C. 103(a) as being unpatentable over Yamagata (U.S. Pre-grant Publication 2002/0070385), in view of Koyama (as above) and Himeshima et al. (as above).

With regard to claim 2,

Yamagata discloses a light-emitting device comprising: a transistor formed over a substrate (963 of fig 9c) a photosensitive organic resin film having an opening (paragraph 97, and 939 of figs 9); and a light-emitting element having an anode, a cathode and a light-emitting layer between the anode and the cathode (paragraph 6); wherein the anode, the cathode and the light-emitting layer are overlapped in an opening in the photosensitive organic resin layer (fig 9c).

Yamagata does not disclose a first passivation film and a second passivation film; wherein an anode and a resin film are formed on the first passivation film; wherein the resin film and the cathode are covered with the second passivation film; nor a light-emitting layer comprising a dopant at a concentration of 0.1% by weight or more and 0.4% by weight or less.

Koyama does disclose a first passivation film (paragraph 321) and a second passivation film (paragraph 331); wherein an anode and a resin film are formed on the first passivation film (paragraphs 323,324); wherein the resin film and the cathode are covered with the second passivation film (paragraph 331 and fig. 16c), wherein the wiring is in contact with the anode on the first passivation film (556, 554 of figs 16), wherein the anode is in contact with the first passivation film and the cathode is in contact with the second passivation film (fig 16c), and a wiring formed over the first passivation film connected with a transistor (43,41, 3504 of fig 11), relieving spacer pressure and protecting the light emitting element.

Himeshima et al. do disclose a light-emitting layer comprising a dopant at a concentration of 0.1% by weight or more and 0.4% by weight or less (paragraph 19, and embodiment 6), avoiding a concentration quenching effect.

It would have been obvious to one of ordinary skill in the art at the time of the invention to incorporate the dopant concentration, as disclosed by Himeshima et al., and the combination of first and second passivation films, as disclosed by Koyama, into the device of Yamagata in order to avoid a concentration quenching effect (paragraph 19 of Himeshima et al.), relieve spacer pressure and protect the light-emitting element (paragraphs 223 and 242).

With regard to claim 8,

Koyama and Yamagata each disclose electronic equipment having a light emitting device wherein the electronic equipment is selected from the group consisting of video cameras, digital cameras, goggle type displays, navigation systems, audio reproducing devices, laptop computers, game machines, portable information terminals, image reproducing devices (figs 17 of Koyama or 12 of Yamagata).

With regard to claim 9,

Koyama or Yamagata discloses a light-emitting device.

Neither Koyama nor Yamagata explicitly disclose the light-emitting element, after turning on for 100 hr with an initial intrinsic brightness set at 320 cd/mm^2 and a duty ratio set at 70%, having a diminishing amount of the intrinsic brightness of substantially 10% or less of the initial intrinsic brightness.

However, the light-emitting element, after turning on for 100 hr with an initial intrinsic brightness set at 320 cd/mm^2 and a duty ratio set at 70%, having a diminishing amount of the

intrinsic brightness of substantially 10% or less of the initial intrinsic brightness is a property of the light-emitting device, does not structurally differentiate the light-emitting device from the prior art, as is required of apparatus claims (MPEP 2114).

With regard to claim 10,

Koyama or Yamagata discloses a light-emitting device.

Neither Koyama nor Yamagata explicitly disclose the light-emitting element, after turning on for 1000 hr with an initial intrinsic brightness set at 320 cd/mm^{2}and a duty ratio set at 70%, has a diminishing amount of the intrinsic brightness of substantially 20% or less of the initial intrinsic brightness.

However, the light-emitting element, after turning on for 1000 hr with an initial intrinsic brightness set at 320 cd/mm^2 and a duty ratio set at 70%, having a diminishing amount of the intrinsic brightness of substantially 20% or less of the initial intrinsic brightness is a property of the light-emitting device, does not structurally differentiate the light-emitting device from the prior art, as is required of apparatus claims (MPEP 2114).

With regard to claim 11,

Koyama or Yamagata disclose a light-emitting device, wherein the light-emitting device includes a transistor that controls a current that is supplied to the light-emitting element (paragraph 4 of Koyama, or paragraph 17 of Yamagata), wherein both the light-emitting element and the transistor are plurally disposed in a pixel portion of the light-emitting device (fig 2 of Koyama, and fig 5 of Yamagata), wherein the pixel portion is disposed on a substrate (paragraph 2 of Koyama, or paragraph 2 of Yamagata).

Neither Koyama nor Yamagata explicitly disclose the light-emitting element wherein when brightness is set at 200 nt when a duty ratio is set at 70%, a temperature of a portion that overlaps with the pixel portion of the substrate is 40 degree centigrade or less.

However, a temperature of a portion that overlaps with the pixel portion of the substrate being 40 degree centigrade or less when brightness of the light-emitting element is set at 200 nt when a duty ratio is set at 70% is a property of the light-emitting device, does not structurally differentiate the light-emitting device from the prior art, as is required of apparatus claims (MPEP 2114).

With regard to claim 12,

Koyama or Yamagata disclose a light-emitting device, wherein the light-emitting device includes a transistor that controls a current that is supplied to the light-emitting element (paragraph 4 of Koyama, or paragraph 17 of Yamagata), wherein both the light-emitting element and the transistor are plurally disposed in a pixel portion of the light-emitting device (fig 2 of Koyama, and fig 5 of Yamagata), wherein the pixel portion is disposed on a substrate (paragraph 2 of Koyama, or paragraph 2 of Yamagata).

Neither Koyama nor Yamagata disclose a temperature of a portion that overlaps with the pixel portion of the substrate being 40 degree centigrade or less when power consumption of the light-emitting element and the transistor is set at 600 mW when a duty ratio is set at 70%.

However, a temperature of a portion that overlaps with the pixel portion of the substrate being 40 degree centigrade or less when power consumption of the light-emitting element and the transistor is set at 600 mW when a duty ratio is set at 70% is a property of the light-emitting device, does not structurally differentiate the light-emitting device from the prior art, as is required of apparatus claims (MPEP 2114).

With regard to claim 13,

Koyama or Yamagata disclose a light-emitting device, wherein the light-emitting device includes a transistor that controls a current that is supplied to the light-emitting element; both the light-emitting element and the transistor are plurally disposed in a pixel portion of the light-emitting device; and the pixel portion is disposed on a substrate (paragraphs 4 and 5).

The phrase "wherein when brightness of the light-emitting element is set at 130 nt when a duty ratio is set at 70%, a temperature of a portion that overlaps with the pixel portion of the substrate is 35 degree centigrade or less" does not structurally distinguish the claimed invention from the prior art, as is required of apparatus claims (MPEP 2114).

With regard to claim 14,

Koyama or Yamagata disclose a light-emitting device, wherein the light-emitting device includes a transistor that controls a current that is supplied to the light-emitting element (paragraph 4 of Koyama, or paragraph 17 of Yamagata), wherein both the light-emitting element and the transistor are plurally disposed in a pixel portion of the light-emitting device (fig 2 of Koyama, and fig 5 of Yamagata), wherein the pixel portion is disposed on a substrate (paragraph 2 of Koyama, or paragraph 2 of Yamagata).

Neither Koyama nor Yamagata disclose a temperature of a portion that overlaps with the pixel portion of the substrate being 35 degree centigrade or less when power consumption of the light-emitting element and the transistor is set at 400 mW when a duty ratio is set at 70%.

However, a temperature of a portion that overlaps with the pixel portion of the substrate being 35 degree centigrade or less when power consumption of the light-emitting element and the transistor is set at 400 mW when a duty ratio is set at 70% is a property of the light-emitting

device, does not structurally differentiate the light-emitting device from the prior art, as is required of apparatus claims (MPEP 2114)

6. Claim 3 is rejected under 35 U.S.C. 103(a) as being unpatentable over Yamagata, Koyama and Himeshima et al. as applied to claim 2 above, and further in view of Yamazaki et al. (U.S. Pre-grant Publication 2002/0074936).

With regard to claim 3

Yamagata discloses a light-emitting device and a photosensitive organic resin (insulating) film, having an opening.

Yamagata does not disclose a radius of curvature of a curve that a section in the opening of the insulating (photosensitive organic resin) film depicts being in the range of from 0.2 to 2 μm.

Yamazaki et al. do disclose a radius of curvature of a curve that a section in the opening of the insulating film depicts being in the range of from 0.2 to 2 μm (paragraph 31), allowing an EL film and insulating film to be formed with minimal complication.

It would have been obvious to one of ordinary skill in the art at the time of the invention to incorporate the configuration of Yamazaki et al. into the device of Yamagata, in order to form the EL film and insulating film with minimal complication.

7. Claim 4 is rejected under 35 U.S.C. 103(a) as being unpatentable over Yamagata, Koyama and Himeshima et al. as applied to claim 2 above, and further in view of Yamazaki et al. (U.S. Patent 6359320).

With regard to claim 4,

Yamagata discloses a light-emitting device.

Yamagata does not disclose a light-emitting device wherein the photosensitive organic resin film has positive photosensitivity.

Yamazaki et al. do disclose a light-emitting device wherein the photosensitive organic resin film has positive photosensitivity, allowing for small changes in the conductivity of the organic resin film.

It would have been obvious to one of ordinary skill in the art at the time of the invention to incorporate the photosensitivity range disclosed in Yamazaki et al. into the device of Yamagata to allow small changes in the conductivity of the organic resin film.

8. Claim 5 is rejected under 35 U.S.C. 103(a) as being unpatentable over Yamagata, Koyama, and Himeshima et al. as applied to claim 2 above, and further in view of Tamai et al. (U.S. Patent 5793497).

With regard to claim 5,

Yamagata discloses a light-emitting device.

Yamagata does not disclose a light-emitting device wherein the photosensitive organic resin film has negative photosensitivity.

Tamai et al. do disclose a photosensitive organic resin film having negative photosensitivity (column 3, line 64 – column 4, line 6), lowering the conductivity of the organic resin film.

It would have been obvious to one of ordinary skill in the art at the time of the invention to incorporate the photosensitivity range disclosed in Tamai et al. into the device of Yamagata in order to lower the conductivity of the organic resin film.

9. Claim 6 is rejected under 35 U.S.C. 103(a) as being unpatentable over Koyama and Himeshima et al., or Yamagata, Koyama and Himeshima et al. as applied to claim 1 or 2 above, respectively, and further in view of *Producing Monolithic Light Emitting Diode Display Chips* (IBM Technical Disclosure Bulletin Vol. 16, Issue 1, Pg. 6, 6/1/1973).

With regard to claim 6,

Koyama discloses a light-emitting device, wherein at least one of the first passivation film and the second passivation film is a carbon nitride film or a silicon nitride film (paragraph 242),

Koyama does not disclose forming a passivation film by an RF sputtering process.

Forming a passivation film by an RF sputtering process is disclosed in *Producing Monolithic Light Emitting Diode Display Chips*, efficiently depositing the film.

It would have been obvious to one of ordinary skill in the art at the time of the invention to incorporate the RF sputtering process into the device of Koyama or Yamagata, in order to efficiently deposit the film.

10. Claim 7 is rejected under 35 U.S.C. 103(a) as being unpatentable over Koyama and Himeshima et al., or Yamagata, Koyama and Himeshima et al. as applied to claim 1 or 2 above, respectively, and further in view of Jones et al. (U.S. Patent 6069443).

With regard to claim 7,

Koyama or Yamagata discloses the light-emitting device.

Neither Koyama nor Yamagata discloses a passivation film comprising a material selected from the group consisting of DLC, boron nitride and alumina.

Jones et al. do disclose a passivation film comprising a material selected from the group consisting of DLC, boron nitride and alumina (column 8, lines 34-40), providing good resistance to wear, electrical insulation, and thermal conductivity.

It would have been obvious to incorporate the material of Jones et al. into the device of either Koyama or Yamagata in order to provide good resistance to wear, electrical insulation and thermal conductivity.

11. Claim 15 is rejected under 35 U.S.C. 103(a) as being unpatentable over Koyama and Himeshima et al., or Yamagata, Koyama, and Himeshima et al. as applied to claim 1 or 2 above, and further in view of Tamano et al. (U.S. Patent 5968675).

With regard to claim 15,

Koyama or Yamagata discloses a light-emitting device.

Neither Koyama nor Yamagata discloses the light-emitting layer comprising a quinacridone derivative.

Tamano et al. do disclose a light-emitting layer comprising a quinacridone derivative (column 25, line 59 – column 26, line 7), providing good heat, light and migration fastness, and good weathering.

It would have been obvious to one of ordinary skill in the art at the time of the invention to incorporate the substance disclosed by Tamano et al. into the device of Koyama or Yamagata in order to provide good heat, light and migration fastness, and good weathering.

Claim Rejections - 35 USC § 102

12. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless –
>
> (b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

13. Claim 23 is rejected under 35 U.S.C. 102(b) as being anticipated by Koyama (as above).

With regard to claim 23,

Koyama discloses a light-emitting device comprising: a transistor formed over a substrate (paragraph 231); a first passivation film (paragraph 234) and a second passivation film (paragraph 242); a light-emitting element formed between the first passivation film and the second passivation film (paragraph 241); and a wiring formed over the first passivation film and connected to the transistor (556 of figs 16), wherein the light-emitting element comprises an anode, a cathode and a light-emitting layer between the anode and the cathode (paragraph 241), wherein the wiring is in contact with the anode on the first passivation film (556,554 of figs 16), wherein the anode is in contact with the first passivation film (paragraphs 321-324, figs 16), wherein the cathode is in contact with the second passivation film (paragraphs 330, 331, fig 16c).

Conclusion

14. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Christopher M. Raabe whose telephone number is 571-272-8434. The examiner can normally be reached on m-f 7am-3:30pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Nimesh Patel can be reached on 571-272-2457. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

CR

ASHOK PATEL
PRIMARY EXAMINER